Pedestrian Safety

Initiative Meeting #5
June 16, 2009

CountyStat

CountyStat Principles

- **Require Data Driven Performance**
- **Promote Strategic Governance**
- **Increase Government Transparency**
- **Foster a Culture of Accountability**

Agenda

- Introductions and Meeting Purpose
- Follow-up Items from Jan. 30, 2009 Meeting
- Collisions Update
- Piney Branch High Incidence Area
- Wisconsin High Incidence Area
- Other Pedestrian Safety Activities
- Wrap-up

Meeting Goal

- **Examine the implementation and effectiveness of pedestrian safety strategies to reduce collisions**

Follow-up Items from January 30, 2009

- **Reconcile the various numbers pedestrian collisions reported in the Piney Branch Pedestrian Road Safety Audit report and the number reported during the 1/30/2009 CountyStat meeting.**
  - The initial report listed collisions where Piney Branch was the primary road; it did not list collisions where Piney Branch was the cross street.
  - Future reports will uses expanded criteria to identify collisions

Complete

- **Report on how Montgomery County is publicizing the Montgomery County Police Department program to enforce traffic rules around school buses.**
  - MCPD received a grant to conduct a media campaign in local theaters. A standard message was run in local theaters in the fall of 2008 to make people aware of the requirement to stop for school buses.
  - A press release is issued each fall reminding drivers to stop for school buses

Complete

- **Apply suggested treatments from the Piney Branch audit report to other scheduled high incidence areas where appropriate.**
  - The Wisconsin Avenue audit yielded very different findings and recommendations from the first HIA along Piney Branch Road. It became clear that there are few one size fits all solutions to be applied at all HIAs.

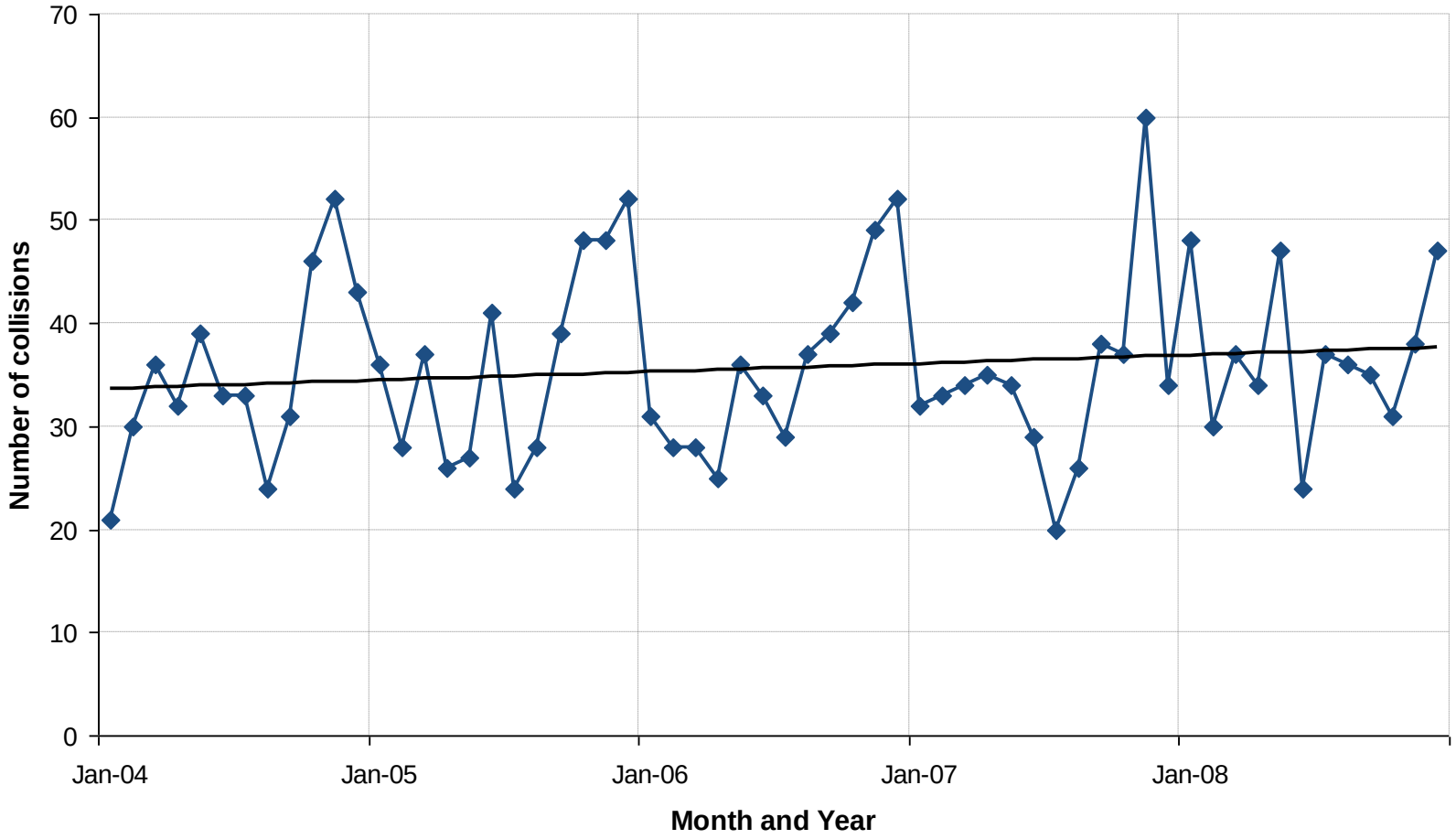
Complete

Update on Pedestrian Collisions

- **There were 7.8% more collisions in 2008 than there were in 2007.**
  - MCPD has been making a concerted effort to clean data as it is coming in, which has increased the numbers slightly
  - Up until September, there had been a larger increase over last year (15%). Since September, the number of collisions has leveled off somewhat

	2004	2005	2006	2007	2008
January	21	36	31	32	48
February	30	28	28	33	30
March	36	37	28	34	37
April	32	26	25	35	34
May	39	27	36	34	47
June	33	41	33	29	24
July	33	24	29	20	37
August	24	28	37	26	36
September	31	39	39	38	35
October	46	48	42	37	31
November	52	48	49	60	38
December	43	52	52	34	47
Total	**420**	**434**	**429**	**412**	**444**

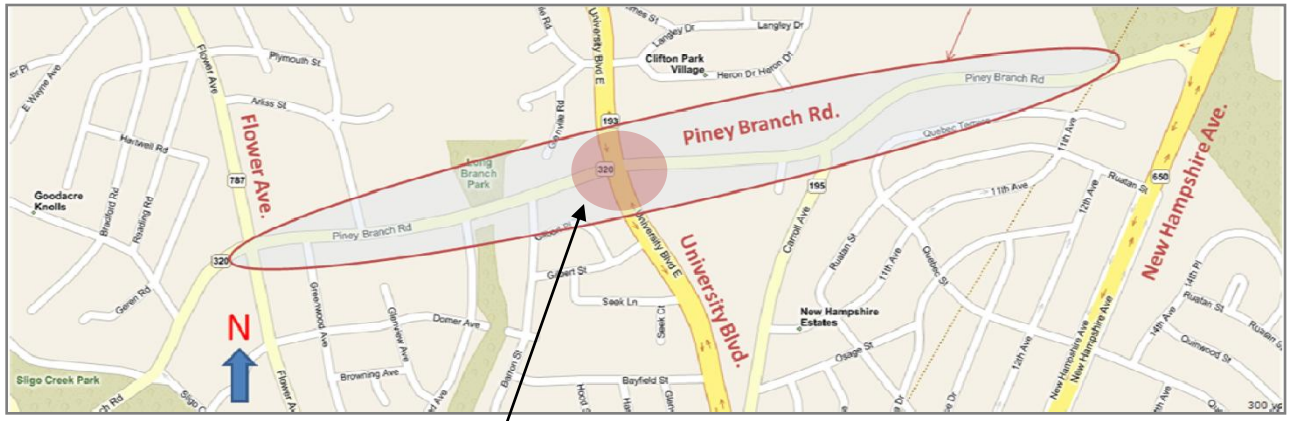
Update on Pedestrian Collisions



Pedestrian collisions show a clear pattern of peaking each year in November/December.

High Incidence Areas: Piney Branch Road

- **First high incidence area: Piney Branch Road from Flower Avenue to the Prince Georges County/Montgomery County line**



- **Number of collisions**
  - Intersection of Piney Branch Road and University Boulevard has the highest concentration of collisions
  - Total collisions in the High Incidence Area

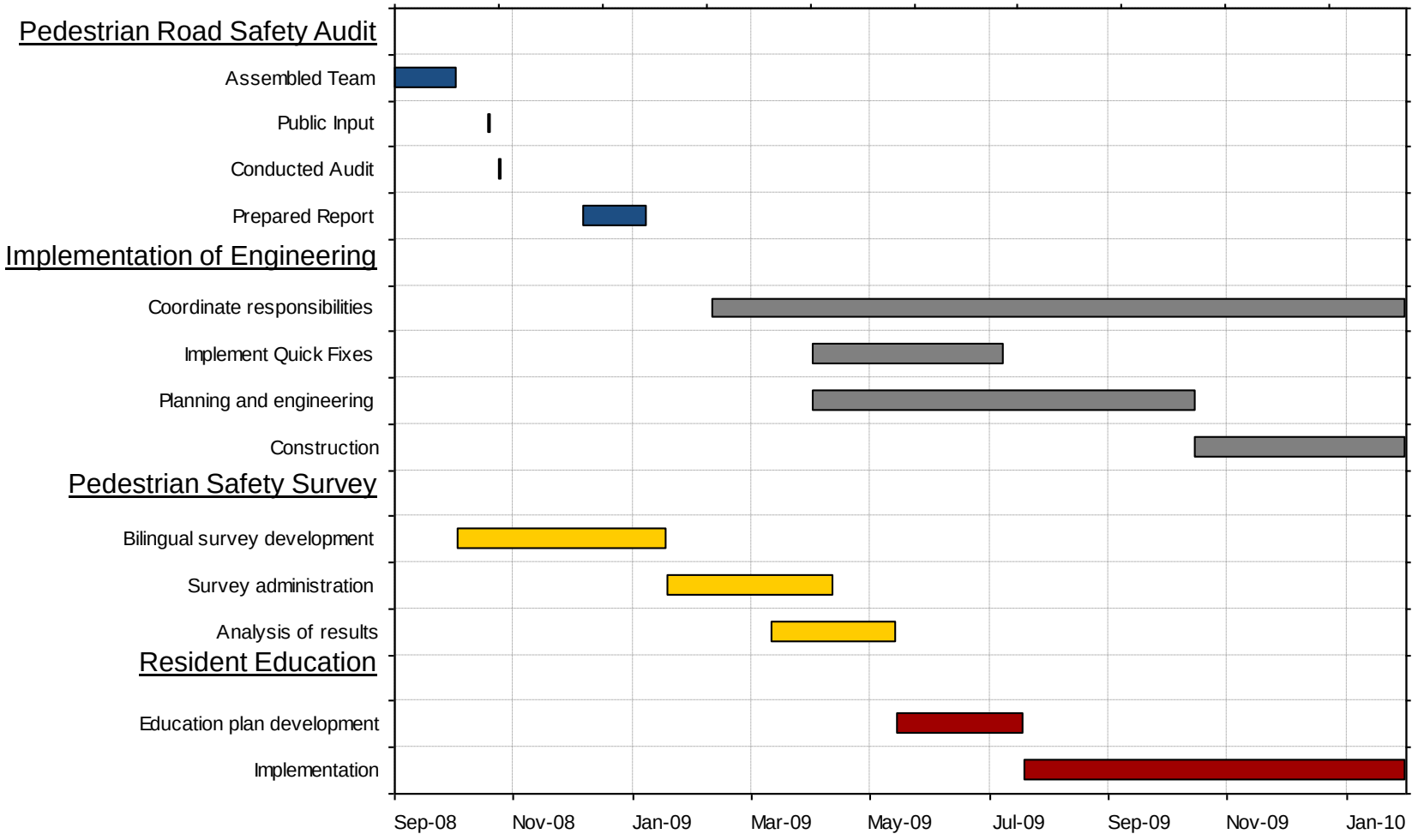
2004	2005	2006	2007	2008	Total
14	10	10	8	8	50

Map reproduced from "Piney Branch Road (MD320) Pedestrian Road Safety Audit"

Piney Branch HIA: Timeline of Activities

Activity	Timeline	Partners	Status
Pedestrian Road Safety Audit –Assembled Team –Public Input –Conducted Audit –Prepared Report	–September 2008 –October 16, 2008 –PRSA October 21-22, 2008 –December 2008	DHCA MCPD MD State Highway Adm. WMATA Long Branch residents PRSA consultant	Complete
Pedestrian Safety Survey – Bilingual survey development – Survey administration – Analysis of results –Prepare Education Plan	–Oct 2008 – Jan 2009 –Feb 2009 –Mar-Apr 2009 –May-Jun 2009	DHCA Regional Service Center CountyStat CASA PIO	Complete
Implementation –Coordinate responsibilities –Implement Quick Fixes –Planning and engineering –Construction	–February 2009 –Spring 2009 –Spring-Summer 2009 –Fall 2009	MCDOT MSHA WMATA PEPCO Consultants Contractors	Beginning

Piney Branch HIA: Timeline of Activities



Piney Branch HIA: Summary of Audit Findings

- **Multiple conflicts between vehicles and pedestrians**
  - Vehicle-to-vehicle conflicts
  - Pedestrian-to-vehicle conflicts
- **High number of mid-block pedestrian crossings**
  - Long distances between pedestrian crossings
  - Bus stop locations encourage mid-block crossings –East Piney Branch
- **Issues with existing pedestrian accommodations**
  - Improperly located and inoperable pedestrian push buttons
  - Pedestrian accommodations obscured by vegetation
  - Narrow sidewalk width
- **Poor nighttime visibility**
- **Poor sight distances for vehicles**
- **Vehicles not stopping for school buses**

Piney Branch HIA: Planned Improvements

Improvement	MCDOT*	MSHA**	Status
Short term improvements (0-6 months)			
–Fix pedestrian push buttons	X		Done
–Repair streetlights and bus shelter lights	X		In progress
–Trim foliage		X	WO written
–Enhanced signing		X	In progress
–Re-stripe / modify crosswalks		X	In progress
–Relocate bus stop	X		In progress
–Enact turn restrictions		X	
–Modify signal timing	X		Done
Mid term improvements (6-18 months)			
–Pedestrian refuge islands	X	X	In design
–Extending median	X	X	In design
–Enhanced / additional lighting	X		To PEPCO
–Install pedestrian buffers – fences		X	In design
–Minor sidewalk enhancements	X	X	In progress
Long term improvements (18+ months)			
–Relocating / modifying business access points		X	Being discussed with MSHA
–Major sidewalk enhancements	X	X	
–Reconstruct / modify traffic signals			

Montgomery County Department of Transportation (MCDOT) involvement needed

*** Maryland State Highway Administration (MSHA) involvement needed*

Piney Branch HIA: Pedestrian Safety Survey

- **Survey was administered in partnership with CASA de Maryland on eight days between 2/10/2009 and 2/25/2009**
  - Both English and Spanish versions were available
  - A total of 588 surveys were collected (77% were in Spanish)
- **Survey findings**
  - Spanish-speakers were more likely to be frequent walkers (20 times or more per week) than English-speakers
  - Groups that felt less safe than average: women, frequent walkers, and neighborhood residents
  - Spanish-speakers were more likely than English-speakers to indicate that they practiced safe behavior, such as crossing at intersections
- **Challenges to conventional wisdom**
  - Conventional wisdom has been that those who obey traffic laws and control devices are safer and may feel safer. This survey suggests that those who feel less safe are more likely to obey the rules.
  - Conventional wisdom has been that the high number of collisions involving Spanish-speakers was due to a lack of knowledge of safe practices. This survey suggests that lack of knowledge is not the issue at this location.

Piney Branch HIA: Pedestrian Safety Survey
How Survey Results Will Be Used

- **Alter the message: consequences instead of information – "If you don't act safely, this is what happens"**
- **Grassroots education outreach will be used, working with established community networks: organizations, businesses, government groups**
- **Use of "Safety Promotion Teams" – residents telling residents**
- **77% of respondents speak Spanish – education outreach will highlight use of organizations and media serving the Hispanic/Latino Community**

Piney Branch HIA: Enforcement Plan

- **Plan development**
  - The 3rd District traffic supervisor participated in the audit of this HIA.
  - The traffic supervisor in consultation with the Crime Analysis Section (CAS) and the Traffic Division will develop the enforcement plan. VMS will be utilized to raise public awareness.
  - The HIA enforcement plan will consist of an expansion of the ongoing efforts in the Piney Branch Rd. corridor.
- **Primary concern is speed reduction**
  - Road characteristics are not favorable for stationary laser enforcement
  - Officers will concentrate enforcement efforts at the intersection of Piney Branch Rd. and University Blvd. and conduct high visibility patrol
- **Enforcement detail will commence in mid July 2009 and run through the remainder of the year.**
  - Enforcement will be conducted on a weekly basis.
- **The 3rd District traffic supervisor will maintain data on the enforcement detail and CAS will provide monthly updates of the crash data. The detail will be adjusted as needed throughout the enforcement period.**

Piney Branch HIA: Lessons Learned

- **Cost of identified improvements will exceed budgeted level of effort amount**
  - Audit program as planned geared toward accomplishing short-term and some mid-range, relatively low- cost improvements; higher cost improvements were not anticipated
- **Some State implemented improvements will be long-term in nature**
- **Ability to leverage funds from either the State, or other programs and projects (private and public), while increasing resources, could result in longer implementation schedules (e.g. SHA's APS Program)**
- **Audits are staying on pace, but implementation schedule has been more challenging than expected. Program adjustments may be needed to maintain alignment.**
- **Public reaction has been very positive, but bringing continual pressure to broaden program and scope of each area.**
- **Need to keep audit areas manageable**

High Incidence Areas: Wisconsin Avenue

- **Second high incidence area: Wisconsin Avenue in Bethesda from Montgomery Avenue to Leland Avenue**

- **Number of collisions**
  - Intersection of Wisconsin Avenue and Montgomery Lane/Montgomery Avenue has the highest concentration of collisions
  - Total collisions in the High Incidence Area

2004	2005	2006	2007	2008	Total
8	6	6	10	3	32

Map reproduced from "Wisconsin Avenue (MD355) Pedestrian Road Safety Audit"

Wisconsin Avenue HIA: Timeline of Activities

Activity	Timeline	Partners	Status
Pedestrian Road Safety Audit –Assembled Team –Public Input –Conducted Audit –Prepared Report	–November 2008 –December 11, 2008 –PRSA December 17-18, 2008 –March 2009	MCPD MD State Highway Adm. WMATA Bethesda residents PRSA consultant	Complete
Pedestrian Safety Survey – Survey administration – Analysis of results –Prepare Education Plan	–Summer 2009 –Fall 2009 –Fall-Winter 2009	Regional Service Center CountyStat PIO	In Progress
Implementation –Coordinate responsibilities –Implement Quick Fixes –Planning and engineering –Construction	–Summer 2009 –Summer 2009 –Fall-Winter 2009 –Spring 2010	MCDOT MSHA WMATA PEPCO Consultants Contractors	Beginning

Wisconsin HIA: Summary of Audit Findings

- **This section of Wisconsin already has a number of good features for pedestrians and did not show the general maintenance issues found in the Piney Branch HIA**
- **Conflicts between turning vehicles and pedestrians crossing with the walk signal are the greatest issue**
  - Intersection of Wisconsin and Montgomery Lane/Montgomery Ave. in particular; remaining intersections in the corridor are affected to a lesser extent
  - Crosswalk placement and alignment at some intersections contributes to conflicts between vehicles and pedestrians
- **Minimum pedestrian signal clearance interval time**
  - The existing pedestrian flashing “DO NOT WALK” signal intervals (clearance intervals) for all but one crossing provide minimum clearance time for pedestrians at 4 feet per second rather than the new standard of 3.5 feet per second

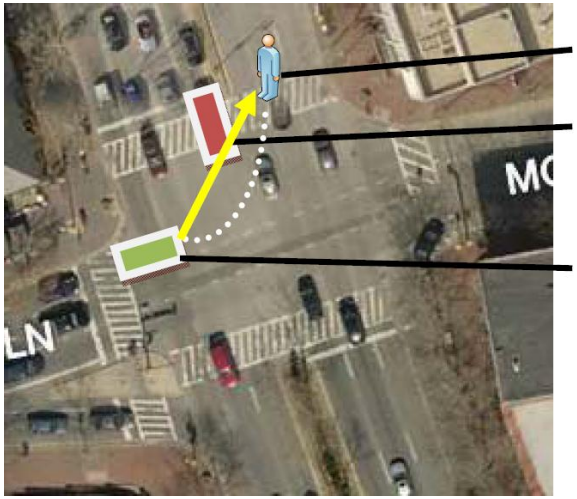
Wisconsin HIA: Audit Findings
Wisconsin Avenue and Montgomery Lane/Avenue

Pedestrian/vehicle conflicts

- A horizontal and vertical curve along Montgomery Avenue negatively impacts the view of pedestrians to the eastbound left turning vehicles heading north on Wisconsin Avenue
- Left-turning vehicles waiting for a gap in the conflicting traffic may become trapped ahead of the stop line and on the pedestrian crosswalk if the conflicting traffic is released before the vehicle can clear the intersection

Suggestions

- Install signs to increase driver awareness of pedestrians
- Install a lead pedestrian interval (LPI) for the north leg crosswalk
- Consider creating and extending pedestrian refuges in the median



Example of the trapped vehicle conflict

"Trapped" southbound left turn vehicle in the north leg crosswalk

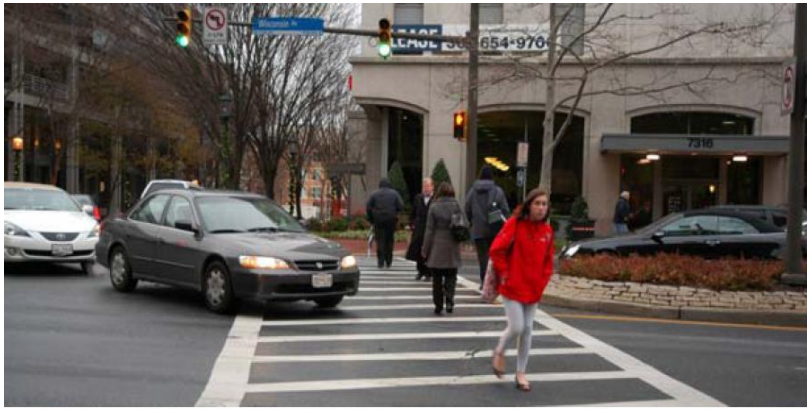
Wisconsin HIA: Audit Findings
Wisconsin Avenue and Elm Street/Waverly Street

Pedestrian/vehicle conflicts

- Left turn vehicles searching for a gap in the conflicting traffic may not be aware of pedestrians crossing
- Eastbound left turning vehicles make wide turns and encroach into the crosswalk at higher speeds
- The offset configuration of the intersection legs appear to add to the driver's task of looking for conflicting vehicles

Suggestions

- Install signs to encourage safer driving at the intersection
- Consider extending the corner radius on the southwest corner to encourage slower right turn movements
- Consider creating and extending pedestrian refuges in the median



A pedestrian and left-turning vehicle conflict at Wisconsin Avenue and Elm Street/Waverly Street

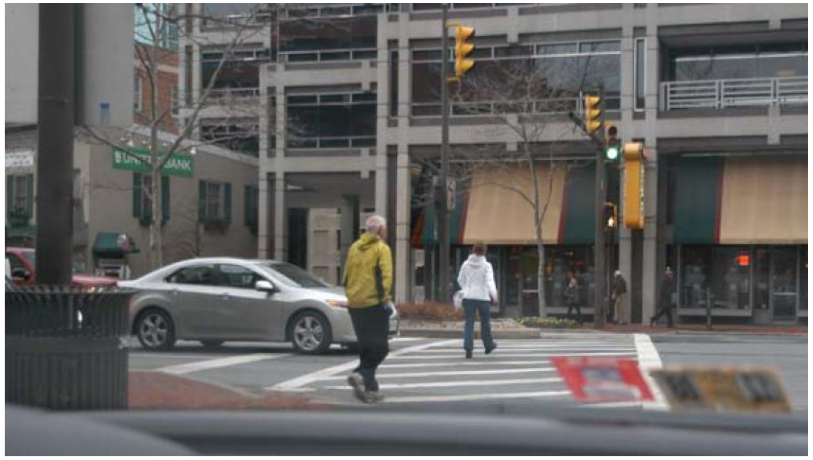
Wisconsin HIA: Audit Findings
Wisconsin Avenue and Elm Street

Pedestrian/vehicle conflicts

- Left turn vehicles searching for a gap in the conflicting traffic may not be aware of pedestrians crossing
- Eastbound left turning vehicles make wide turns and encroach into the crosswalk at higher speeds
- The offset configuration of the intersection legs appear to add to the driver's task of looking for conflicting vehicles

Suggestions

- Consider realigning and restriping the crosswalks to provide safe pedestrian crossings with proper access and minimum pedestrian clearance times



View of south leg crosswalk from passenger side of a vehicle. Photo shows how left turning vehicles are directed into the crosswalk, conflicting with pedestrians. View from driver shows this conflicting traffic pattern is even more severe.

Wisconsin HIA: Audit Findings
Wisconsin Avenue and Elm Street

Pedestrian/vehicle conflicts

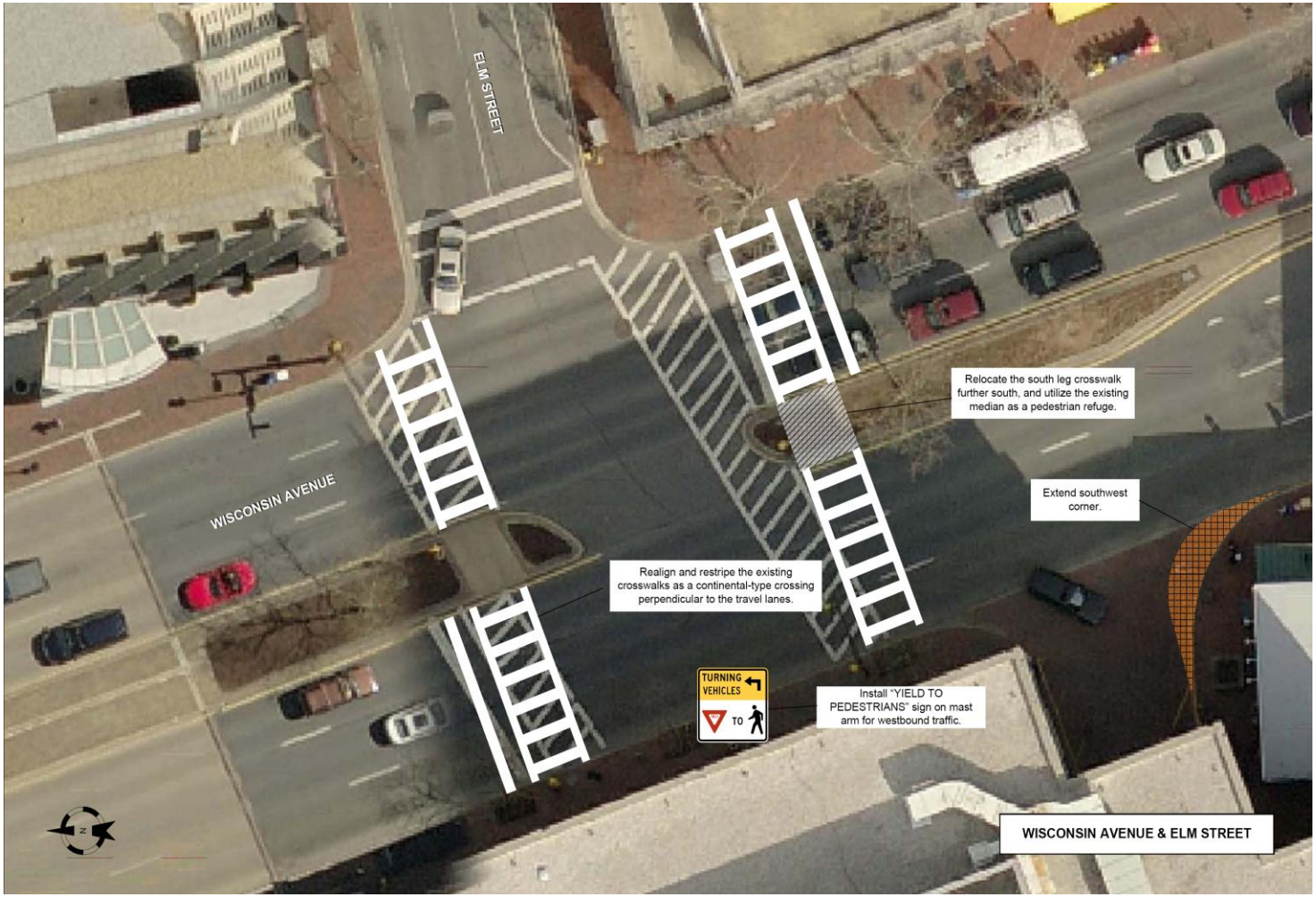
- The north and south leg crosswalks are not perpendicular to the conflicting travel lanes, thus requiring longer pedestrian clearance times
- The north leg crosswalk is uneven
- The south leg crosswalk markings lead pedestrians into a tree and signal pole

Suggestions

- Install signs to encourage safer driving at the intersection
- Consider extending the corner radius on the southwest corner to encourage slower right turn movements
- Consider creating and extending pedestrian refuges in the median

North leg crosswalk leading to tree and signal pole at Wisconsin Avenue at Elm Street

Wisconsin HIA: Audit Findings
Wisconsin Avenue and Elm Street



Wisconsin HIA: Planned Improvements

Improvement	MCDOT*	MSHA**	Status
Short term improvements (0-6 months)			
– upgrade signing	X	X	
– re-time ped signal clearance times	X		
– re-stripe worn markings		X	
– relocate trash cans / news paper boxes	X		
Mid term improvements (6-18 months)			
– upgrade/ add streetlighting	X		
– relocate crosswalks / ramps	X	X	
– modify signal operations	X	X	
– modify corner radii	X	X	
Long term improvements (18+ months)			
– reconstruct traffic signal	X	X	
– reconstruct Montgomery Ave Intersection	X	X	
– widen sidewalks	X	X	

•*Montgomery County Department of Transportation (MCDOT) involvement needed*
•** *Maryland State Highway Administration (MSHA) involvement needed*

Wisconsin HIA: Enforcement Plan

- **Plan development**
  - The 2nd District traffic supervisor participated in the RSA of this HIA.
  - The traffic supervisor in consultation with the Crime Analysis Section (CAS) and the Traffic Division will develop the enforcement plan. VMS will be utilized to raise public awareness.
- **The primary areas of concern for this area of Wisconsin Ave are:**
  - Turning maneuvers
  - Fail to yield issues
  - Fail to Obey traffic control issues
- **Enforcement detail will commence in mid July 2009 and run trough the remainder of the year.**
  - Enforcement will be conducted on a weekly basis.
- **This enforcement plan is an expansion of the ongoing enforcement plan for this area of Wisconsin Ave.**
- **The 2nd District traffic supervisor will maintain data on the enforcement detail and CAS will provide monthly updates of the crash data. The detail will be adjusted as needed throughout the enforcement period.**

High Incidence Areas: Measuring Success

- **Number of collisions before treatment compared to number after treatment**
  - Before treatment period: 3 years prior to the date of the Pedestrian Road Safety Audit
  - After treatment period: 3 years after intermediate engineering treatments done and enforcement and education begun (about 18 months after audit date)
- **Intermediate measures of success**
  - Improved perceptions of safety by pedestrians and improved knowledge of safe behaviors as measured using pedestrian surveys
  - Increased compliance with laws
  - Reduced speed (if indicated) and conflicts in movement

HIA Name	Before Treatment		After Treatment		Percent Change
	Time Period	# Collisions	Time Period	# Collisions	
Piney Branch	10/21/2005 – 10/20/2008	28	About 5/1/2010 – 4/30/2013		
Wisconsin	12/17/2005 – 12/16/2008	19	About 7/1/2010 – 6/30/2013		
Total		**47**			

Other Pedestrian Safety Activities
Safe Routes to School

- **Total FY09 School Operations Observed: 34**
- **Total FY09 Schools Engineering Completed: 18**
  - Another 13 were evaluated for improvements
- **Total FY09 Administrator Meetings: 22**
- **Total FY09 Parent Meetings: 5 (81 parents in attendance)**
  - Educational material distributed
- **Spring Student Survey to Measure % students walking/biking sent to 26 schools**
  - Surveys sent out biannually: spring and fall
  - Survey returns expected within the next two weeks
- **Safe Kids Educational Display: 5 schools, 1 library**
  - See next slide

Other Pedestrian Safety Activities
Safe Routes to School -- Educational Display

Other Pedestrian Safety Activities
Safe Routes to School: Measuring Program Outcome

- **Number of collisions before treatment compared to number of collisions after treatment**
  - Before treatment period: 2 years prior to the date of the study
  - After treatment period: 2 years after engineering treatments done and enforcement and education begun (about 6 months after the study date)
  - More robust tools need to be developed to aid analysis of collisions around schools
- **Percent of students walking to school**

Example evaluation

School Name	Before Treatment		After Treatment		Percent Change
	Time Period	# Collisions	Time Period	# Collisions	
Bells Mill ES	3/17/2004 – 3/16/2006	2	9/17/2006 – 9/16/2008	1	-50%
Oak View ES	2/6/2004 – 2/5/2006	5	8/6/2006 – 8/5/2008	1	-80%
Total		**7**		**2**	**-71%**

Tracking Our Progress

- **Meeting Goals:**
  - Examine the implementation and effectiveness of pedestrian safety strategies to reduce collisions

- **How will we measure success**
  - Pedestrian collisions with vehicles are reduced

Wrap-up

- **Confirmation of follow-up items**
- **Time frame for next meeting**